"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

Vector Studies

USSR

UDC 576.858.73.095.38:576.895.42

TERSKIKH, I. I., and AKHUNDOVA, E. D., Institute of Virology imemi D. I. Ivanovskiy, Moscow

"Development of Ornithosis Agent in the Bodies of the Ticks A. persicus and O. coniceps"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 72, pp 458-460

Abstract: The possibility that A. persicus and O. coniceps, parasites of birds associated with humans, could be ornithosis reservoirs was tested by infecting them parenterally with Lori strain ornithosis agent or allowing them to feed on infected chick embryo chorio-allantoic membrane. In both cases the infectious titer increased intensively up to the 10th day, gradually leveled off to the 20th day, and remained stable up to the 30th day. Titers were consistently higher in ticks infected by feeding rather than parenterally, either because they had received higher doses or because the agent reproduces more intensively when introduced naturally. The results indicate that these ticks may be reservoirs for ornithosis agent.

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USSR UDC 619-036.22-022.9:[598.2+595.42

BEKLESHOVA, A. Yu., SMIRNOV, V. A., and TERSKIKH, I. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Role of Seabirds and Their Ectoparasites in the Epizootic Process"

Moscow, Voprosy Virusologii, No 5, 1971, pp 596-600

Abstract: A study was conducted of the prevalence of ornithosis and arbovirus infection among kittiwakes (Rissa tridactyla) and guillemots (Uria aalge Pontopp and Uria lomoia) on Kharlov and Kuvshin islands in the Barents Sea at the beginning and end of the nesting period in 1966-1967. Attention was focused on the relationship between the seasonal activity and abundance of the tick Ceratixodes putus Pick.-Cambr. and the spread of ornithosis and encephalitis among the birds. The kittiwake is the main host of the tick and less susceptible to arboviruses. The guillemot, on the other hand, is more susceptible because its contacts with the tick are less constant.

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Immunology

USSR UDC 576.858.73

BORISOVA, S. M., POPOVA, O. M., and TERSKIKH, I. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Production of a 'Cold' Variant of an Ornithosis Strain and Investigation of Its Biological Properties"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 70, pp 721-723

Abstract: The effect of low temperature (8°C) on the development of the ornithosis inducer in a culture of chick fibroblasts was studied. In particular, it was found that the cold-adapted strain produced was no longer pathogenic when applied intranasally to white mice, which are usually highly susceptible to this strain. The antigen prepared was active in complement-fixation and hemagglutination tests. The strain also possessed pronounced immunogenic properties, so that it appears to be useful as a strain for live vaccination.

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USSR UDC 616.988.73-036.12-085.371

BILIBIN, A. F., IL'INSKIY, Yu. A., TERSKIKH, I. I., and DVURECHENSKAYA, G. S., Chair of Infectious Diseases, Second Moscow Medical Institute imeni N. I. Pirogov, and Ornithosis Laboratory, Institute of Virology imeni D. I. Ivanovskiy, Academy of Mecical Sciences USSR

"Vaccine Therapy in Chronic Ornithosis"

Moscow, Sovetskaya Meditsina, Vol 33, No 7, Jul 70, pp 24-27

Abstract: Chronic latent ornithosis with periodic relapses must be treated not only with antibiotics which act on the ornithosis pathogen and accompanying bacteria, but also with substances which stimulate the body's general and specific reactivity. The tissue ornithosis vaccine developed by Terskikh in 1963 accomplishes these objectives. The vaccines can be given subcutaneously or intracutaneously. The treatment procedure is determined individually for each patient, on the basis of his local, focal, and general reactions to initial intracutaneous administration of 0.1 ml of the vaccine. If the reactions are mild, the intracutaneous route is used for subsequent vaccinations. This method is also recommended when other diseases are present. Immediate and long-term observations of patients with chronic ornithosis who have been treated with this vaccine indicate that the method is effective.

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USSR

UDC 576.858.25.095.38:576.895.42(98)

BEKLESHOVA, A. Yu., TERSKIKH, I. I., and SMIRNOV, V. A., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"Arboviruses Isolated from Ceratixodes putus Pick.-Cambr Avian Ticks Collected in the Far North"

Moscow, Voprosy Virusologii, No 4, Jul/Aug 70, pp 436-440

Abstract: The Ixodes tick Ceratixodes putus Pick.-Cambr, a widely distributed ectoparasite of aquatic birds, is found in two regions of the USSR, the Far East (Kurile, Commander, and Sakhalin Islands) and the Northwest (islands and coasts of the Barents and White Seas). The virus was isolated from various developmental phases of the tick (egg, larva, nymph, male, and female) immediately after collection from birds and their nests and after refrigeration at 0 to 4°C for 2-1/2 years. Of the four strains studied in detail, two were identified as tickborne encephalitis virus, while the other two were found to be antigenically related to the WEE and EEE viruses. All of the strains were pathogenic for mice, especially when administered intracerebrally. The disease was readily transmitted to chicks which were fed naturally infected ticks. Chicks inoculated with virus isolated from ticks developed a generalized infection with involvement of the viscera, in which the virus was detected.

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USSR UDC 576.858.73.097.22:615.334

POPOVA, O. M., BORISOVA, S. M., and TERSKIKH, I. I., Institute of Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR

"A Penicillin-Resistant Strain of Ornithosis Virus and its Biological Properties"

Moscow, Voprosy Virusologii, No 1, 1970, pp 114-116

Abstract: Ornithosis virus (Lori strain) was isolated from the organs of a dead parrot and grown in chick embryo yolk sacs in the presence of increasing amounts of penicillin. After the 19th passage, the penicillin-resistant strain was nontoxic for white mice in 1:5, 1:10, 1:20, and 1:40 dilutions, whereas the control or original strain killed all the animals within 3-6 hours of innoculation. The penicillin-resistant strain lost its complement-fixing activity, while retaining its hemagglutinating activity. In tissue culture its growth was similar to that of the control.

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USSR

UDC 576.801

MEL'NIKOV, Y. S., and TERSKOV, I. A., Physics Institute, Siberian Branch of the Academy of Sciences USSR, Krasnoyarsk

"Transmission Functions of Continuous Microorganism Cultures"

Novosibirsk, Izvestiya Sibiriskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 1, No 5, Apr 70, pp 67-71

Abstract: The theory of automation must be applied to the analysis and synthesis of dynamic systems involving processes of microbiological biosynthesis. A continuous culture is considered to be a "black box," and only the input and output coordinates need to be examined for its description. A transmission function takes into account, in addition to the biological characteristics, also the technical characteristics. Technological parameters, depending on the construction of the cultivator and on the method of obtaining a continuous culture, have an effect on the results and distort them. The concept of the transmission function is refined, and a mathematical model for the biosynthesis is set up, in which it would be possible to separate the biological characteristics from the technical ones. The class of problems pertaining to growth characteristics was chosen for the study. In this case, the output parameters may be any values

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MEL'NIKOV, Y. S., et al, Izvestiya Sibiriskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, Vol 1, No 5, Apr 70, pp 67-71

characterizing the decrease in raw material, the accumulation of biosynthesis products, or the intensity of the associated processes. Of all parameters, the concentration of the biomass is of greatest interest, since it is closely related dynamically to the mass metabolic processes in the culture. It can be traced by the differential optical density meter, a device by which changes in the growth rate can also be monitored. An equation is derived for the concentration of the biomass in a growing culture. This equation represents the biomass culture as a device with a two-position control, and a relay-impulse system, in which the continuation of the control effect can be stopped. Transmission functions of continuous cultures of microorganisms are required for engineering calculations, and may represent a classification device for different cultures and strains.

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USSR

UDC 576.76:576.8

VOYTOVICH, Ya. V., PONOMAREV, P. M., TRUBACHEV, I. N., GITEL'ZON, I. I., and TERSKOV, I. A., Institute of Biophysics, Siberian Department, Academy of Sciences USSR, Krasnoyarsk

"Gas and Water Balance in a Regenerative Life-Support System Using Hydrogen-Oxidizing Bacteria"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademiya Nauk SSSR, Seriya Biologicheskikh Nauk, No 10 (190), 1971, pp 11-19

Abstract: Hydrogen-oxidizing bacteria can perform 3 functions that warrant their consideration as regenerative agents in a spacecraft life-support system: (a) utilization of carbon dioxide exhaled by man, regeneration of oxygen by electrolysis of water synthesized in the course of human and bacterial oxidation, and liberation of hydrogen needed for the bacterial life processes; (b) regeneration of water from human liquid wastes; (c) regeneration of proteins in the cosmonaut's diet. This report summarizes the results of a study of the growth, gas exchange, and biochemical composition of Hydrogenomonas eutropha grown in a continuous flow-type culture. The data suggest that a life-support system can be based on the use of chemosynthesis of H_2 bacteria and electrolysis.

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USSR

UDC 581.035

SID'KO, F. Ya.; TERSKOV, I. A., Corresponding Member Academy of Sciences USSR; BERESNEV, G. F., YEROSHIN, N. S., and ZAKHAROVA, V. A., Institute of Physics imeni L. V. Kirenskiy, Siberian Department of the Academy of Sciences USSR, Krasnoyarsk

"The Possibility of Utilizing Transition Processes in Order to Increase the Efficiency of Photosynthesis by the One-Celled Alga Chlorella"

Moscow, Doklady Akademii Nauk SSSR, Vol 199, No 5, 1971, pp 1,206-1,208

Abstract: In the experiments conducted, it was established that effective utilization of radiant energy is not achieved in the cultivation of chlorella in dense cultures; the efficiency of photosynthesis is lower than that obtained when the cells are illuminated uniformly. The efficiency could be increased by utilizing light adaptation during a transitional period. This can be done when cultivation is carried out in a multilayer apparatus. A significant effect was already obtained in a two-layer apparatus irradiated from one side. On cultivation in the first layer at a high irradiancy, in which the photosynthetic activity of the cells reached a high level, the output was pumped into the second layer with a lower irradiance. The final crop was collected from the second layer. The optical density in the first layer was $D \leq 0.5$-

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USSR

SID'KO, F. Ya., et al., Doklady Akademii Nauk SSSR, Vol 199, No 5, 1971, pp 1,206-1,208

0.6, while the total value of D in the two layers corresponded to an equation derived by Sid'ko et al in Sbornik, Aktinometriya i Atmosfernaya Optika [Collection. Actinometry and Optics of the Atmosphere], p 326, Tallin, 1968. The utilization of radiant energy increased in the two-layer apparatus. Thus, at irradiances corresponding to 240 and 480 wt/m^2 photosynthetically active radiation the efficiency of photosynthesis increased by 25 and 40% vs. that in single-layer cultivation. At an irradiancy of 408 wt/m^2, the efficiency of photosynthesis approached 19% and was approximately 1.5 times higher than in single-layer cultivation at irradiances of 80-100 wt/m^2 that were optimal for the single-layer process. The reverse procedure of first irradiating chlorella cells at a low light intensity and then carrying out cultivation at a high intensity had the opposite effect of reducing the efficiency of photosynthesis. Irradiation at high light intensities produced under certain conditions profound changes in the pigment system, morphology, and biochemical composition of chlorella cells, while the efficiency of photosynthesis remained high. One of the changes produced was a reduction in the concentration of chlorophyll.

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USSR

UDC 542.91+547.752

POGOSYAN, S. A., TERSYAN, A. G., VAKUNTS, O. I., TATEVOSYAN, G. T., Institute of Fine Organic Chemistry imeni A. L. Mndzhoyan, Academy of Sciences of the ArmSSR, Yerevan

"Indole Derivatives. XLIII. 2(3)-Chloro-1,4,4a,5,7,8,13b,13c-octahydro-13H-benz(g)indolo(2,3-a)indolizine and 2(3)-Chloro-1,4,4a,5,7,8,9,14,14b,14c-decahydroisoindolo(1,2-a)indolo(2,3-c)asepine"

Yerevan, Armyanskiy Khimicheskiy Zhurnal, Vol 26, No 2, 1973, pp 153-158

Abstract: The paper describes synthesis of 2(3)-chloro-1,4,4a,5,7,8,13b,13c-octahydro-13H-benz(g)indolo(2,3-a)indolizine and 2(3)-chloro-1,4,4a,5,7,8,9,14,14b,14c-decahydroisoindolo(1,2-a)indolo(2,3-c)asepine. The biological properties of salts (hydrochlorides and methiodides) of these bases were studied. The results of these studies will be given in a future paper.

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TERTEROV A.A.

(1)

HYDROLOGY AND METEOROLOGY IN AZERBAYDZHAN

UDC 551.5:947.084(479.24)(047)

[Article by Head of the Administration of the Hydrometeorological Service of the Azerbaydzhan SSR A. D. Babayev, A. A. Terterov; Moscow, Meteorologiya i Gidrologiya, Russian, No 12, 1972, submitted 3 July 1972, pp 106-109]

The cycle of solved, solvable and planned for solution in the near future scientific problems of the hydrometeorologists of Azerbaydzhan is indicated.

Before the victory of the Soviet Power in Azerbaydzhan in 1920, science as a whole and, in particular, hydrometeorology were almost nonexistent. There was no integrated hydrometeorological network: in 1920 there were a total of two active meteorological stations in the territory of Azerbaydzhan (Baku and Dzhafarkhan).

Only after the October Victory did the all-around study of the natural resources of the republic and the Caspian Sea begin. Hydrometeorological research and projects in the republic are performed both by the Hydrometeorological Service organized in 1922 and by other scientific and production organizations. In the same year, the Baku Marine Observatory later converted to the Institute of the Caspian Sea and Azerbaydzhan was created under the Hydrometeorological Service.

Out of the most important studies of the prewar times (before 1940) it is necessary to note the work on the climate of Azerbaydzhan by I. V. Figurovskiy (Klimaticheskoye rayonirovaniye Azerbaydzhan) (Climatic Districting of Azerbaydzhan), and so on), the creation of the water cadaster for the Transcaucasus, the study of the hydrochemistry of the Caspian (1933-1935) under the direction of S. V. Bruyevich, the publication of the Klimatologicheskiy opisaniye Azerbaydzhan (Climatological Description of Azerbaydzhan) by E. N. Shishlinskiy and S. N. Kopelevich, 1937). The studies in the field of synoptic meteorology were started at the Baku weather office basically after 1935 when the synoptic-climatic districting of the territory of Azerbaydzhan was carried out for the first time (A. A. Madat-zade).

During World War II, the Azerbaydzhan Hydrometeorological Service was under the Red Banner Caspian Flotilla, and it worked on the defense needs of the country.

JPRS 58133
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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 678.742.2-137.46.22:66.018.86

TERTERYAN, R. A., LESHCHENKO, S. S., LIVSHITS, S. D., GOLOSOV, A. P., ITSIKSON, L. B., MONASTYRSKIY, V. N., KARPOV, V. L., SOBOLEVA, N. S., MAL'TSEVA, A. P., and ISKHAKOV, L. I.

"Radiation Stability of Ethylene and Styrene Copolymers"

Moscow, Plasticheskiye Massy, 7, 1973, pp 3-5

Abstract: A study was made of the continuous statistical copolymerization of ethylene monomers (E) with styrene (S) under conditions similar to those under which low density polyethylene is produced and also of the behavior of E + S polymers in an ionizing radiation field. The results of copolymerization studied -- grams of copolymer/hr concentration of S in the polymer, density, and others -- are given as a function of styrene concentration and pressure at 200°C. An increase in the concentration of S in the reaction mixture leads to a decrease in the copolymer yield, in its characteristic viscosity, in its melting temperature, and its crystallinity, and to an increase in the density. The presence of S monomers in the polyethylene chains and the chemical bonds between them and the methylene groups significantly increases the resistance of the material to α-radiation damage. The gases evolved during the radiation of various types of polymers were determined.

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AP0045173 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code UR0191

90892f Continuous high-pressure copolymerization of ethylene with isobutylene. Golosov, A. P.; Terteryan, R. A.; Larina, M. V.; Monastyrskii, V. N. (USSR). *Plast. Massy* 1970, (1), 5-7 (Russ). The copolymn. of ethylene (I) with isobutylene (II) was studied in a continuous-flow tubular reactor at 200-20° and 400-2000 kg/cm². High-mol.-wt. products were obtained when the II content was ≥15 mole %; a further increase in II content gave low-mol.-wt. copolymers, accompanied by a sudden decline in m.p. (from 100 to 0°). The tensile strength of I-II copolymers was inversely proportional to II content, declining to 0 when II content was 40 mole %. A radical copolymn. mechanism was proposed. The copolymn. involved chain transfer (via II mols.) and the termination, thus leading to the formation of low-mol.-wt. copolymers. The mol. wt. of the copolymers (500-15,500) and the copolymn. rate were proportional to the pressure. Increased pressure had a favorable effect on the d., tensile strength, elongation at break, and m.p. of the I-II copolymers.

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USSR

UDC 621.791.011:669.14:62-761

TRUBILKO, V. I., Engineer, SAVCHENKOV, V. A., Candidate of Engineering Sciences, SOTNIK, I. S., and TURTYSHNAYA, N. K., Engineers, Ukrainian Scientific Research Institute of Metals

"Effect of Protective Coatings on the Properties of Weld Joints"

Moscow, Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26

Abstract: Three types of primer paints (GF-570, GF-570RK, and FL-03K) were investigated to determine the effect of coating type and thickness on stability of arc burning, seam formation, welding mode, and weld joint properties as well as determination of the sanitary and hygienic conditions of the welding process. Tests were made using St. 3sp steel, 10 mm thick, with the following chemical composition: 0.19% C, 0.52% Mn, 0.21% Si, 0.018% S, and 0.011% P. Results of the tests showed that use of the above-mentioned primer paints, with a thickness of 15-25 microns, provides satisfactory weld joint properties when welding with standard modes. The seam metal had a ductility equal to that of the base metal. Increasing coating thickness leads to deterioration of the seam formation and development of pores. Strength is increased by means of slowing the welding speed.

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USSR

TRUBILKO, V. I., et al., Svarochnoye Proizvodstvo, No 1, Jan 73, pp 25-26

FL-03K primer caused pores to form in the metal seam, and porosity could only be eliminated by reducing the welding speed by 10-15%. Best coating and thickness for extended protection from corrosion was a 25-micron thickness of GF-570RK. One figure, 2 tables.

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UNCLASSIFIED

TITLE--FLOATING BRIDGES ON ICE COVERED RIVERS -U-

PROCESSING DATE--13NOV70

AUTHOR-(02)-TERTYSHNIKOV, A., KUZNETSOV, I.

COUNTRY OF INFO--USSR

SOURCE--VOYENNYY VESTNIK, NO 2, 1970, PP 86-89

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PORTABLE FIXED BRIDGE, PONTOON, AMPHIBIOUS BRIDGE/(U)BAT CRAWLER TRACTOR, (U)K61 AMPHIBIOUS FERRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/0164

STEP NO--UR/0018/70/000/002/0086/0089

CIRC ACCESSION NO--AP0133993

UNCLASSIFIED

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UNCLASSIFIED

CIRC ACCESSION NO--AP0133993 PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING WINTER COMBAT TRAINING, WHEN RIVER ICE IS NOT THICK ENOUGH FOR COMBAT VEHICLES TO DRIVE ACROSS THE ICE, PONTOON SUBUNITS (PODRAZDELENIYA) FREQUENTLY PUT UP FLOATING BRIDGES. THEY HANDLE THIS TYPE OF A JOB USING VARIOUS TECHNIQUES, DEPENDING ON ICE THICKNESS AND STRUCTURE. IF THE ICE IS 30 CM OR MORE THICK AND THERE ARE NO ICE HUMMOCKS ON THE SURFACE, THE BRIDGE IS ASSEMBLED RIGHT ON THE ICE, AFTER WHICH THE CREWS BLAST UPSTREAM AND DOWNSTREAM FROM THE BRIDGE AXIS, AT A MINIMUM SAFE DISTANCE FOR THE PONTOONS. THE BRIDGE IS THEN AFLOAT. IF THE ICE IS LESS THAN 30 CM THICK OR IF THE ICE IS EXTREMELY HUMMOCKY, A CHANNEL NORMALLY 10 TO 12 METERS WIDE AND AT LEAST 18 TO 24 METERS LONG IS PREPARED FROM THE STARTING BANK. THE PONTOON ELEMENTS ARE LOWERED INTO THIS CHANNEL AND LINKED TOGETHER. THE REST OF THE ICE IN THE PATH OF THE BRIDGE IS BLASTED. THE PONTOON ELEMENT BRIDGE IS MOVED TO THE OPPOSITE BANK WITH THE AID OF A BAT ROADWAY LAYER OR TANK TRACTOR. TRUCKS AND K-61 AMPHIBIOUS PERSONNEL CARRIERS ARE MOST OFTEN USED FOR ICE REMOVAL, AND LESS FREQUENTLY BAT ROAD LAYERS. SOMETIMES ICE FREEZES ONTO THE BOTTOM OF THE BRIDGE SECTIONS WHEN THE BRIDGE IS BEING MOVED, CREATING HIGH RESISTANCE AND PROGRESS DELAYS. THE SPEED OF PROGRESS NATURALLY DIMINISHES. OF COURSE IT IS BEST TO ASSEMBLE PONTOON BRIDGES DIRECTLY ON THE ICE, BUT CONDITIONS DO NOT ALWAYS MAKE THIS POSSIBLE. IT IS THEREFORE ESSENTIAL TO PERFECT PONTONIER SKILLS IN BUILDING FLOATING BRIDGES IN ICE CLEARED CHANNELS.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

ACCESSION NO--AP0133993 UNCLASSIFIED PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--IN OUR OPINION THIS TRAINING SHOULD PROCEED TOWARD THE FOLLOWING OBJECTIVES: REDUCTION OF TIME REQUIRED TO CLEAR ICE FROM THE WATER AND SHORE ATTACH THE ANCHORS; REDUCTION OF RESISTANCE TO BRIDGE MOVEMENT, SUCH AS BY BLASTING OR MECHANICAL REMOVAL OF FRACTURED ICE OUT OF THE CLEAR WATER AREA. IN ADDITION, IT IS ESSENTIAL TO PREPARE SNOW CUSHIONS AT LEAST 30 CM THICK FOR OFF LOADING AND OPENING BRIDGE SECTIONS ON THE NEAR SHORE. IMPROVEMENT OF METHODS OF BUILDING PONTOON BRIDGES IN WINTER IS ONE OF OUR PONTONIERS' MOST IMPORTANT TASKS. EFFICIENCY INNOVATORS AMONG THE TROOPS CAN AND SHOULD APPROACH THIS PROBLEM CREATIVELY, DIRECTING THEIR EFFORTS TOWARD ACHIEVING FAST TROOP PASSAGE OVER ICEBOUND RIVERS.

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USSR

ODINTSOV, V. S., PETRENKO, V. S., TERTYSHNYY, V. N., KHARSUN, A. I.

UDC 632.95

"Enzymes -- Targets of Organophosphorous Insecticides in the Metamorphosis of Flies"

Fiziol. aktivn. veshchestva. Resp. mezhved. sb. (Physiologically Active Substances. Republic Interdepartmental Collection), 1972, vyp. 4, pp 26-28 (from RZh-Khimiya, No 2 (II), Feb 73, Abstract No 2N474)

Translation: In order to discover the relation between the activity of esterases and the physiological activity of insecticides with respect to insects a study was made of the nature of the activity dynamics of acetylcholinesterase, carboxylesterase and arylesterase in larvae, pupae and winged houseflies during ontogenesis. The colorimetric hestrine method was used to establish the high activity of the three esterases in the given steps of metamorphosis. The weak physiological activity of organophosphorous compounds in the individual stages of metamorphosis, in particular, the pupae, is explained not by the absence of active enzymes -- targets -- but by a peculiarity of pupal metamorphosis (a nonfeeding phase) and the physical-chemical properties of the compounds. The necessity for using strongly fumigating organophosphorous insecticides for successful control of the pupae stage of development of insects is demonstrated.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 591.8:577.4:591.481:595.774

ODINTSOV, V. S., TERTYSHNYY, V. N., and ALEKSYENKO, I. P., Institute of Organic Chemistry, Academy of Sciences Ukrainian SSR, Kiev

"Localization of Acetylcholinesterase Activity in the Central Nervous System of Larvae of Blood-Sucking Gnats (Diptera; Simulidaw) Developing in Winter."

Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 1, Jan/Feb 70, pp 224-226

Abstract: Young larvae of blood-sucking gnats (species Odagmis), obtained from forest ponds and streams in the Kiev area in January, 1969, were used. With the help of specially prepared needles, the nervous network was exarticulated from the larvae, placed in icecold distilled water, and (after fixation) incubated in a medium from which $Pb(NO_3)_2$ was excluded. Acetylthiocholine iodide was used as a substrate. Hydrogen sulfide in Ringer solution was used to impart a dark-brown color to the colorless copper thiocholinate. The nervous network was then washed with distilled water, treated with 10% neutral formalin, washed again, and embedded in glycerin-gelatin. In control experiments, the nervous network prior to incubation was

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USSR

ODINTSOV, V. S., et al., Moscow, Doklady Akademii Nauk SSSR, Vol 190, No 1, Jan/Feb 70, pp 224-226

treated with eserine. Microphotography showed that the dark-brown zones in the ganglia and connectors of the central nervous system of the larvae are areas of localization of the greatest acethylcholinesterase activity, leading to the conclusion that the intensity of the coloration may serve as a criterion of the intensity of acetylcholinesterase activity. It was histochemically established that acetylcholinesterase is highly active in certain zones of all ganglia of the central nervous system, particularly in the areas of the neuropil, synaptic connections, and peripheral zones. Slight coloration in other zones of the ganglia is an indication of low acetylcholinesterase activity. The high acetycholinesterase activity in the central nervous system of the wintering larvae of gnats indicates that the property of continuous development is characteristic of this species, and is responsible for the large increase of the spring population of these particularly vicious blood-sucking insects.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

Pulse Technique

USSR

UDC: 621.317.79

KISELEVSKIY, F. N., SERGEYEV, A. I., TERTYSHNYY, V. T., Kiev "Order of Lenin" Polytechnical Institute imeni the Fiftieth Anniversary of the Great October Socialist Revolution

"A Device for Measuring the Time Intervals Between Adjacent Pulses of an Input Pulse Sequence"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 12, Apr 72, Author's Certificate No 334542, Division G, filed 9 Jul 70, published 30 Mar 72, p 175

Translation: This Author's Certificate introduces a device for measuring the time intervals between adjacent pulses of an input pulse sequence. The device contains an input pulse shaper, a quantizing pulse generator, a coincidence gate, a pulse counter, a switch and a registration unit. As a distinguishing feature of the patent, the design is simplified by adding a delay unit whose first input is connected to the output of the switch, while the second input is connected to the output of the shaper. The first output of the delay unit is connected to the input of the coincidence gate, and the second output is connected to the input of the pulse counter.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

KOBZEV, V. V., TERYAYEV, B. G.

UDC: 621.373.826:621.396

"Interference Resistance of a Binary Laser Communications System With Phase and Frequency Keying of the Light-Beam Carrier"

Tr. Mosk. in-ta radiotekhn., elektron. i avtomatiki (Works of the Moscow Institute of Radio Engineering, Electronics and Automation), 1972, vyp. 64, pp 24-34 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D446)

[No abstract]

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

TERYAYEV, V. A., SHESTAKOV, I. B., PEREPLETCHIKOV, G. N., MARKOVSKIY, V. N., IVASHKIN, G. P., MAR'YANOVSKIY, M. M.

UDC: 681.327

"Method of Manufacturing Thin-Film Magnetic Matrices"

USSR Authors' Certificate No 251713, Filed 2 April 1968, Published 10 February 1970 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, 1970, Abstract No 10B161P, by N. V.)

Translation: A method is suggested for manufacturing thin-film magnetic matrices differing from known methods in that in order to decrease the ohmic resistance of the control lines and retain the magnetic properties of the matrix, the conducting layers are produced by gluing down foil using organic varnishes (glues) as the matrices are heated in the presence of a magnetic field in the plane of the substrate. One illustration.

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UNCLASSIFIED PROCESSING DATE--13NOV70

1/2 024

TITLE--FIELD ELECTRON EMISSION OF CYLINDRICAL CATHODES --U-

AUTHOR-(03)-VOLOSOV, V.I., LAZAREV, V.N., TERYAYEV, V.YE.

COUNTRY OF INFO--USSR

SOURCE--ZH. TEKH. FIZ. 1970, 40(4), 855-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON EMISSION, TUNGSTEN, MOLYBDENUM, VOLT AMPERE CHARACTERISTIC, CATHODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/1979 STEP NO--UR/0057/70/040/004/0855/0858

CIRC ACCESSION NO--AP0125568

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

2/2 024 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0125568

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FIELD ELECTRON EMISSION OF 6-8 MU W AND MO WIRES WITHOUT ANY OXIDE SURFACE FILM MOUNTED IN THE AXIS OF A 10-MM-DIAM. CYLINDRICAL TA ANODE (15 MM LONG) WAS STUDIED IN VACUUM OF 10 PRIME NEGATIVE4-10 PRIME NEGATIVE9 TORR VOLT AMPERE (V-A) CHARACTERISTICS ARE SHOWN. DISCONTINUITIES ARE FOUND IN THESE V-A CHARACTERISTICS, WHICH LEAD TO HYSTERESIS REGIONS IN THE CURVES. THE TIME DEPENDENCE OF THE FIELD EMISSION CURRENT IS PLOTTED. AT SMALL CURRENTS, A CURRENT INCREASE IS OBSD. IN THE 1ST HR, AND AT CURRENTS LARGER THAN 1 MA A DECREASE OCCURS IN THE 1ST HR. THE EMISSION OBSD. IS SOME ORDERS HIGHER THAN THAT CALCD. BY THE FOWLER NORDHEIM THEORY. THE PHENOMENA OBSD. MAY BE ATTRIBUTED TO MICRODEFORMATIONS OF THE CATHODE SURFACE UNDER THE ACTION OF THE ELEC. FIELD. PHOTOMICROGRAPHS OF FIELD EMISSION CATHODES AFTER OPERATION SHOW SUCH DEFORMATIONS.

FACILITY: INST. YAD. FIZ., NOVOSIBIRSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

Aeronautical & Space

USSR

UDC 629.78.062:681.14

TERYAYEV, Ye. D., Shamrikov, B. M., and Sergeyev, E. A.

"Prospects for the Use of Aircraft-Borne Digital Computers in Complexly Automated Adaptive Systems of Aircraft Control"

Inform. Materialy. Nauch. Sovet po Kompleks. Probl. (Information Materials of the Scientific Council on Complex Problems). "Kibernetika." AN SSSR. No 6 (53), 1972, pp 19-29 (from Referativnyy Zhurnal, Raketostroyeniye, No 5, 1972, Abstract No 5.41.211, by T. A. Ye.)

Translation: In complex automated control systems, aircraft-borne digital computers control the flight (control by means of the trajectory and the angular position), control the engines, perform the processing of information and deliver the flight data, control the parametric functions, and monitor the operation of individual subsystems. Ways of constructing a complex system on the basis of an aircraft-borne digital computer are shown, an approach to the selection of an aircraft-borne digital computer in complex systems of aircraft control is presented, predictions are made concerning the characteristics of aircraft-borne digital computers of the future, which will have the following features: 1) standard microcomponents; 2) functionally programmed networks of microcomponents; 3) a continuously changing microstructure; 4) self-diagnosis and self-repair; 5) self-organizing complex subsystems; 6)

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USSR

TERYAYEV, Ye. D., et al., Inform. Materialy. Nauch. Sovet po Kompleks. Probl. "Kibernetika." AN SSSR. No 6 (53), 1972, pp 19-29 (from Referativnyy Zhurnal, Raketostroyeniye, No 5, 1972, Abstract No 5.41.211, by T. A. Ye.)

indication of circuit component faults; 7) structural and functional flight stability. 7 references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR UDC 66.012

TERYUSHOV, I. N., Kazan' Institute of Chemical Technology imeni S. M. Kirov

"Investigation of the Characteristics of Inertia and Controllability of Nonstationary Processes in Heat Exchange by the Method of Scaling Theory"

Novosibirsk, Izvestiya SO AN SSSR, Ser. tekhn. nauk, No 13 (178), Vol 3, Oct 70, pp 56-64

Abstract: The method of scaling theory and physical modeling is used to develop simple and reliable methods for calculating the dynamics of heat exchangers so that their stabilizing properties can be evaluated during the planning stage in accordance with requirements for automatic control. A general functional relationship is found for the inertia and controllability of heat exchangers as a function of their operational, physical and structural parameters. Equations are derived for calculating the characteristics of inertia and controllability of coaxial tubular heat exchangers when there is a disruption in steady-state

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

TERYUSHOV, I. N., Izvestiya SO AN SSSR, Ser. tekhn. nauk, No 13 (178), Vol 3, Oct 70, pp 56-64

flow of the heat transfer agents through the channels. These equations can be used to calculate devices for the best steady-state conditions with regard to automation requirements, and also to solve problems in the synthesis of systems for controlling heat-exchange processes.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 64.385.6

GOLUBENTSEV, A.F., TERZHOV, I.I.

"Method Of Measurement And Calculation Of Spectral Densities Of Wave Components Of The Noise Of A Beam In Crossed Fields"

V sb. Vopr. elektron.tekhn. (Problems Of Electronic Technology--Collection Of Works), Issue 2, Saratov, Saratov University, 1971, pp 113-136 (from RZh--Elektronika i yeye primeneniye, No 3, March 1972, Abstract No 3A11)

Translation: A method is described of measurement for a calculation of the p wave components of the noise of an electron beam (EB). For the calculation it is necessary to measure the noise factor of the amplifier in which the q wave components of the EB interact with the wave of the delay system. The noise factor is only measured during a change of the electrical performance of the electron transformer with a velocity jump of the EB located between the electron gun and the input into the delay system. The elements are obtained of the matrix of the transformer and amplifier for a 4-wave model of a thin EB in crossed fields. 10 ref. R.B.

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ELECTRONICS

Amplifiers

USSR

UDC 621.385.832.032.21.001.5

GOLUBENTSEV, A.F., TERZHOV, I.I.

"Minimum Noise Factor Of Microwave Beam Amplifiers Of M-Type"

Radiotekhnika i elektronika, Vol XVII, No 3, Mar 1972, pp 569-576

Abstract: After a review of works concerned with the development of the theory of noise in M-type microwave beam devices, the paper proceeds, with the use of the theorem of kinetic power (with a low signal) for thin beams in crossed fields, to obtain a general expression for the minimum noise factor of microwave amplifiers of M-type. The effect of distributed losses in the delay system on the noise factor is taken into consideration. 3 fig. 18 ref. Received by editors, 13 July 70.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 621.385.6

GOLUBENTSEV, A.F., TERSHOV, I.I.

"Minimizing The Noise Factor Of Beam Microwave Amplifiers As A Problem For The Theory Of Optimum Control (Summary Of Deposited Manuscript)"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1970, No 2, pp 84-85 (from RZh--Elektronika i yeye primeneniye, No 8, August 1970, Abstract No 8A141)

Translation: The problem of finding the minimum noise factor for a beam microwave amplifier is a typical variation of problems of the type of Mayer's problem, which in its turn can be reduced to a variation of the Lagrange problem on the conditional extremum. Utilizing the methods of the mathematical theory of optimum processes, based on use of the maximum principle of L. S. Pontryagin, it is possible to reduce a variational problem to a curve. The process of calculation is given for an optimum transformer consisting of two exponential transformers of space charge waves and the corresponding design of a low-noise electron gun which is most often realized in Type O microwave amplifiers. Systems of differential equations are obtained for the transformers being optimized, which are solved with the aid of a computer with piecewise continuous or a differentiable derivative of the distribution of the characteristic impedence with respect to the axis of the beam. 1 ref. G.B.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

Acc. Nr. AP0040412 7 Ref. Code: UR 0109

JPRS 50248

UDC 621.385.633.14:621.391.883.22

USSR

TERZHOV, I. I.

"Minimum Noise Factor of a Microwave Beam Amplifier"

Moscow, AN SSSR, Radiotekhnika i Elektronika Vol 10, No 1, Jan 70, pp 100-108

Abstract: A linear analysis of noises in a microwave beam amplifier, described in the generalized form as a (m+h) pole piece, is presented. A method is outlined for determining the minimum noise factor of a microwave amplifier with an arbitrary number of oscillations modes, propagating both in the beam and in the HF-structure. Expressions for amplification and noise factors are derived. A minimization of noise factor is carried out, taking the variable transformer properties into account, which are expressed in the Hermitian forms invariance of input wave components, passing through the transformer. The results of the analysis, make it possible to

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

AP0040412

carry out the noise factor minimization without a detailed work analysis of the amplifier and transformer, which transforms the wave-component of the beam, at the input of the HF-structure. The data may be used for determining the minimum noise factor of an arbitrary microwave beam amplifier. Original article has 2 figures and 50 formulas.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 621.385.633.14:621.391.883.22

TERZHOV, I. I.

"Minimum Noise Factor of a Microwave Beam Amplifier"

Moscow, AN SSSR, Radiotekhnika i Elektronika Vol 10, No 1, Jan 70, pp 100-108

Abstract: A linear analysis of noises in a microwave beam amplifier, described in the generalized form as a (m+h) pole piece, is presented. A method is outlined for determining the minimum noise factor of a microwave amplifier with an arbitrary number of oscillations modes, propagating both in the beam and in the HF-structure. Expressions for amplification and noise factors are derived. A minimization of noise factor is carried out, taking the variable transformer properties into account, which are expressed in the Hermitian forms invariance of input wave components, passing through the transformer. The results of the analysis, make it possible to carry out the noise factor minimization without a detailed work analysis of the amplifier and transformer, which transforms the wave-component of the beam, at the input of the HF-structure. The data may be used for determining the minimum noise factor of an arbitrary microwave beam amplifier. Original article has 2 figures and 50 formulas.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC: 531.7.087.92

TERZIN, S. S.

"Investigation of the Condition of the Saturation Choke of a Magnetic Amplifier Displacement Converter"

Kibernetika i Avtomat. Upr. (Khar'kovsk. Otd.) Tr. Seminara. Vyp. 2 [Cybernetics and Automatic Control (Khar'kov Division) Works of a Seminar, No 2 — Collection of Works], Kiev, 1969, pp 101-113 (Translated from Referativnyy Zhurnal Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 7, 1970, Abstract No 7A100, by V. N.)

Translation: A magnetic amplifier displacement converter controlled by permanent magnets is discussed. The operation of the converter is based on changes in the magnetic condition of the loop core of the choke when one of the control magnets is rotated relative to the other. As one of the magnets is rotated, a load current is set up in the working circuit, the magnitude of which is determined not only by the parameters of the magnetic and electrical circuits of the convertor but also by the angle of rotation of the movable magnet. An analysis is presented of the substitution circuit of the converter, allowing the influence of the parameters of individual elements of the device to be evaluated. Four illustrations.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

122 1016 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--EFFECTS OF BOIL DURATION PRIOR TO CAPPING AND OF 75PERCENT FERROSILICON PARTICLE SIZE ON THE SILICON ENRICHMENT OF THE TOP OF THE

AUTHOR-(05)-KONDRASHOV, M.M., SABYEV, M.P., VAINTRAUB, S.S., LASHCHEV, V.YA., TERZIYAN, P.G.

COUNTRY OF INFO--USSR

SOURCE--METALLURG (MOSCOW), 1970, 15(1), 21-3

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--INGOT CASTING, FERROSILICON, PARTICLE SIZE, DISTRIBUTION COEFFICIENT, SILICON, STEEL PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1933 STEP NO--UR/0130/70/015/001/0021/0023

CIRC ACCESSION NO--AP0108262

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

2/2 . 018 UNCLASSIFIED PROCESSING DATE--02OCT70

IRC*ACCESSION NO--AP0108262

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USE OF 75PERCENT 10-29 MM PARTICLE SIZE FERROSILICON AIDS IN THE UNIFORM DISTRIBUTION OF THE SI. THE BOIL TIME OF THE METAL IN THE INGOT BEFORE CHEM. CAPPING HAS A GREATER EFFECT ON THE SI DISTRIBUTION IN THE TOP OF THE INGOT THAN THE 75PERCENT FESI PARTICLE SIZE FRACTION. THE OPTIMUM BOIL TIME FOR THE STEEL IN THE MOLD DEPENDING ON THE INTENSITY OF THE PROCESS SHOULD BE CONSIDERED AS 1.5-3 MIN. THE OPTIMUM 75PERCENT FESI PARTICLE SIZE FRACTION IS 10-30 MM. DATA OBTAINED CAN BE USED FOR OTHER PLANTS WORKING IN SIMILAR CONDITIONS AS THE KOMMUMARSK PLANT WHERE THE WORK WAS DONE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 669.18.046.55:658.562

TERZIYAN, P. G., SABIYEV, M. P., LOSHCHEV, V. Ya., KONDRASHOV, M. M., and CHEBOTNIKOV, A. G., Kommunarsk Metallurgical Plant; Scientific Research Institute of Mining and Metallurgy

"Effect of the Method of Deoxidation on the Quality of Semi-Killed Steel"

Moscow, Metallurg, No 9, Sep 70, pp 21-22

Abstract: This paper concerns the effect of the method of deoxidation of semi-killed steel on the rejects of the first conversion. Until 1966, it was the practice to deoxidize semi-killed 3 ps steel in the ladle with 45%-ferrosilicon at 2.2 kg/t and with aluminum at 250 g/t. In 1966 the procedure was changed to deoxidation in the ladle with ferrosilicon alone, which has been used in correspondingly increased ratios. Deoxidation of 3 ps steel with ferrosilicon alone produces a more stable residual oxygen content in the steel. The test data show that the rejects of the first conversion, using ferrosilicon alone in the ladle, decrease as compared to that resulting from deoxidation with ferrosilicon and aluminum. A study of the macrostructure of ingots of semi-killed steel has demonstrated honeycomb blowholes in a normally deoxidized ingot. The blowholes were observed only in the upper part of the ingot. The formation and growth of honey comb blowholes in both semi-killed and rimmed

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

TERZIYAN, P. G., et al, Metallurg, No 9, Sep 70, pp 21-22

steels are related to the ratio of pressure occurring in the blowhole (P_{bo}), which is in contrast to the directional external pressure on the blowhole (P_{ext}), the latter depending on ferrostatic pressure. With an increase in external pressure, the equilibrium concentrations of oxygen increase, creating dissimilar conditions for the reaction $C+{}^{1}/_{2}O_{2} \rightarrow CO$ in various zones over the length of the ingot. The presence of blowholes at the surface of the upper part of the ingot is typical of normally deoxidized metal. The lack of such blowholes indicates overdeoxidation and the appearance of a shrinkage cavity.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR UDC: 621.373:530.145.6

GRAMBLATOV, V. M., TESELKIN, V. V.

"A Highly Reflective Plate With Coupling Apertures as a Frequency Selector in a Laser Cavity"

Elektron. tekhnika. Nauchno-tekhn. sb. Gazorazryadn. pribory (Electronic Technology. Scientific and Technical Collection. Gas-Discharge Devices), 1970, vyp. 2(18), pp 20-25 (from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D272)

Translation: An investigation is made into the possibility of using a highly reflective plate with coupling apertures for frequency selection. The method of equivalent long lines is used to analyze the spectrum of an optical cavity in which a coupling plate is located. Data are given from an experimental study of the selective properties of an ionic argon laser cavity in which a highly reflective plate with coupling apertures is located. Resumé.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR UDC 539.4

GREBENIK, V. M., DIDYK, R. P., TESLENKO, A. G., TSANKO, V. K., (Dnepropetrovsk)

"Fatigue Strength of Metals with Explosive Hardening"

Kiev, Problemy Prochnosti, No 8, 1972, pp 114-116.

Abstract: The fatigue strengths of metals subjected to explosive hardening is estimated. Analysis of the data produced experimentally showed that the change in fatigue strength (increase in fatigue limit) resulting from explosive hardening is approximately 1.5 kg/mm^2 for a steel containing 0.42% C, 0.52% Mn, 0.23% Si, 0.61% Cr and 1.14% Ni following an explosion producing a pressure at the division boundary between explosion products and metal of 220 kbar. The sharp increase in strength characteristics and changes in hardness of surfaces produced for a steel with 0.46% C, 0.77% Mn, 0.39% Si, 1.16% Cr and 0.15% Ni make this material particularly resistant to wear and the influence of sign-changing loads.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

KORNEYCHUK, V. I., TARACHENKO, V. P., TESLENKO, A. K.

"Synthesis of Combination Circuits in One Class of Multivalued Algebras"

Avtomatika i Vychisl. Tekhn. [Automation and Computer Technology], 1972, No 5, p 9-13 (Translated from Referativnyy Zhurnal Kibernetika, No 4, 1973, Abstract No 4V449, by G. Gavrilov).

Translation: A full system of functions in k-valued logic is studied, consisting of max (x, y), min (x, y) and m functions $\phi_j(x)$ $(1 \leq j \leq m)$, among which there are k functions

$$I_s(x) = \begin{cases} k-1 & \text{where } x = s, \\ 0 & \text{where } x \neq s, \end{cases}$$

s = 0, 1,..., k-1. The authors have found that the set of functions $\{\phi_j(x)\}$ should include constants and identity functions (i.e., functions corresponding with the variables), since their realization does not require special logic elements, while their inclusion expands the capabilities for minimization of functions. Problems of synthesis and minimization of circuits in this system

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USSR

Korneychuk, V. I., Tarachenko, V. P., Teslenko, A. K., Avtomatika i Vychisl. Tekhn., 1972, No 5, pp 9-13.

of functions are studied. In the first stage of synthesis of a combination circuit, a representation of the function (which must be realized by the circuit) is selected in the form of a certain superposition of functions included in the initial system. It is stated that the most conveneint and natural representation is the so-called canonical form

$$f(\tilde{x}) = \max_{\tilde{\sigma}} (\min (f(\tilde{\sigma}), I_{\sigma_1}(x_1), I_{\sigma_2}(x_2), \ldots, I_{\sigma_n}(x_n))),$$

where $\tilde{x} = (x_1, x_2, \ldots, x_n)$, $\tilde{\sigma} = (\sigma_1, \sigma_2, \ldots, \sigma_n)$, $\sigma_i \in E_k = \{0, 1, \ldots, k-1\}$ and the maximum is taken with respect to all sets $\tilde{\sigma}$ of values of variables $x_1, x_2, \ldots, x_n$. The next stage in snythesis of a combination circuit consists of minimization of the canonical form of the function studied. Here, the operations of incomplete attachment and absorption are introduced, the application of which to canonical form of the function yields a certain analogue of the reduced dnf. The criterion of incomplete attachment is formulated and proven for this system without clarification of the form of functions $\phi_j(x)$.

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USSR

Korneychuk, V. I., Tarachenko, V. P., Teslenko, A. K., Avtomatika i Vychisl. Tekhn., 1972, No 5, pp 9-13.

At the same time, the authors note that the criterion of absorption should be established on the basis of the specific assignment of the set of functions $\{\phi_j(x)\}$. Further, synthesis of combination circuits is studied in the so-called expanded algebra of Post (terminology of the authors), including the constants 0, 1.,,,. k - 1, and the functions max (x, y), min (x, y), $I_s(x)$ $(0 \leq s \leq k - 1)$ and max $(\alpha_1, x + \alpha_1, \ldots, x + \alpha_q) + \beta$ (here the sum is taken with respect to mod k), $0 \leq \alpha_1 < \ldots < \alpha_q \leq k - 1$, $\beta \in \{0,1\}$, $0 \leq q \leq k - 1$.

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USSR UDC: 621.396.6-181.5(088.8)

SKLYARSKIY, Ya. A., TESEOGLU, O. M., CHULOK, M. P.

"A Method of Nondestructive Noncontact Inspection of the Surface of Thin Cylindrical Parts"

USSR Author's Certificate No 280676, filed 8 Apr 69, published 4 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6V200 P)

Translation: A method is proposed for nondestructive noncontact inspection of the surface of thin cylindrical parts such as the axial leads of radio components. The procedure is based on flaw detection using light. In order to automate inspection, a light beam shaped to a rectangular cross section by a slot illuminator, the width of the beam being commensurate with the dimensions of the minimum flaw, while the length is greater than the wobble amplitude of the part to be checked, is allowed to fall on the surface being checked in a direction perpendicular to the axis of the part.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 633.51:631.524.86

MIRPULATOVA, N. S., KAMILOVA, M. Kh., RYSBAYEVA, A. S., NAGORNAYA, N. M., and TESHABEYEVA, R., Scientific Research Institute of Plant Protection, All Union Academy of Agricultural Sciences imeni V. I. Lenin

"Maintaining Resistance to Verticillium Wilt in Cotton Strains"

Moscow, Selektsiya i Semenovodstvo, No 5, Sep/Oct 71, pp 12-15

Abstract: Verticillium dahliae grows readily in the soil of Uzbekistan and destroys large amounts of cotton. To bring the situation under control, wilt-resistant cotton strains should be grown on threatened fields. On cotton farms, the sowing of cotton should alternate with the sowing of alfalfa, which is resistant to this fungus and inhibits its growth. After harvest, the fields should be cleared of all residual weeds to prevent proliferation of the fungus. All instructions on fertilization should be strictly observed to harvest healthier, more resistant seeds. Similarly, sprays should be applied at the right time (which varies for the various strains of cotton). Before seeds are collected, all wilted plants should be removed from the field. To prevent infection during transport, all

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USSR

MIRPULATOVA, N. S., et al., Selektsiya i Semenovodstvo, No 5, Sep/Oct 71, pp 12-15

seeds must be pretreated prior to shipment. All waste material must be burned, and the highest sanitary standards should be enforced on cotton farms.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

TESHUKOV, V. M.

UDC 533.6.01

"A Self-Modeling Problem of the Disintegration of a Two-Dimensional Discontinuity"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 2, March-April 1972, pp 29-38

Abstract: Consideration is given to a plane problem of the disintegration of a two-dimensional discontinuity for equations of gas dynamics. The initial surface of the discontinuity is assumed to have the shape of an angle close to π. The existence and uniqueness of the solution of the problem in a linear formulation are proven. Linear problems of the diffraction and reflection of shock waves have been dealt with in non-Soviet sources. The problem of the disintegration of a two-dimensional discontinuity leads to a new boundary-value problem for equations of a mixed type with discontinuous coefficients. 4 figures. 9 references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 539.214;539.374

DROZD, M. S., TESKER, Ye. I.

"Analytical Determination of the Plastically Deformed Zone Under Penetration of a Sphere into the Cemented Surface of a Steel Plate"

V sb. Issled. i kontrol' mekhanich. svoistv materialov nerazrushayusnch. metodami (Investigation and Control of Mechanical Properties of Materials by Nondestructive Methods -- Collection of Works), Volgograd, 1972, pp 39-41 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V447)

Translation: The well-known approximate solution to the problem for finding the depth of the plastic zone in a plate upon penetration of a spherical stamp (based on the use of the Hertz elastic solution and the plasticity conditions for maximum tangential stress) is generalized to a plate with hardness that is variable with depth and consequently with a variable yield point $\sigma_s(z)$. The form of the function $\sigma_s(z)$ as applied to a cemented plate is shown experimentally. G. Ya. Popov.

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USSR

UDC 621.791.06:669.15-194

TESLENKO, T. S., SOBOLENKO, T. M., and BERDICHEBSKIY, G. V., Institute of Hydrodynamics of the Siberian Department of the Academy of Sciences USSR

"The Structure of Steel Joints Produced by Explosive Welding"

Kiev, Avtomaticheskaya Svarka, No 1, Jan 72, pp 1-4

Abstract: A study was made of the composition and structure of the zone of steel joints produced by explosive welding, the distribution of alloying elements in the seam zone, and their behavior under heat treatment. Investigated were the following material pairs: 1Kh18N9 steel and 1Kh18N9 steel, St. 3 steel and nickel, St.3 steel and 1Kh18N9T, 1Kh18N9T steel and G13L steel, and 1Kh18N9T steel and U8 steel. The parameters of the interdiffusion of the welded materials and the transition zones are analyzed on the basis of their micropictures and concentration curves immediately after welding and after annealing in vacuum for 4 hrs at 650, 850, and 1200°C. Five illustrations, nine bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

UNCLASSIFIED PROCESSING DATE--17JUL70

TITLE--MASS SPECTROMETRIC INVESTIGATIONS OF IONIC AND NEUTRAL COMPOSITION OF THE UPPER ATMOSPHERE BY MEANS OF MR12 ROCKETS -U-

AUTHOR--ZHLUDKE, A.D., POLOSKOV, S.M., POKHUNKOV, A.A., TESLENKO, V.P., SHIDLOVSKIY, A.A.

COUNTRY OF INFO--USSR

28
5
33

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 3, PP 72-82

DATE PUBLISHED--------70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, MISSILE TECHNOLOGY

TOPIC TAGS--MASS SPECTROMETER, UPPER ATMOSPHERE, METEOROLOGIC ROCKET, GAS COMPOSITION ANALYZER/(U)MR12 METEOROLOGIC ROCKET

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1977/0162 STEP NO--UR/0050/70/000/003/0072/0082

CIRC ACCESSION NO--AP0043756

UNCLASSIFIED

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

Acc. Nr: AP0043756

Ref. Code: UR 0050

PRIMARY SOURCE: Meteorologiya i Gidrologiya, 1970, Nr 3, pp 77-82

MASS-SPECTROMETRIC INVESTIGATIONS OF IONIC AND NEUTRAL COMPOSITION OF THE UPPER ATMOSPHERE BY MEANS OF MR-12 ROCKETS

A. D. Zhludko, S. M. Poloskov, A. A. Pokhunkov, V. P. Teslenko, Shidlovskiy, A. A.; Ivanov, Yu. F.

Some research technique problems of gas composition of the Earth's upper atmosphere are considered, results of the investigation of the neutral and ionic composition at the heights of 100—180 km are given.

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Lasers & Masers

USSR

BUZUKOV, A. A., TESLENKO, V. S., Novosibirsk

"Pressure at the Front of a Shock Wave in the Zone Near the Breakdown of a Laser Spark in Water"

Novosibirsk, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 3, May/Jun 1970, pp 123-124

Abstract: Pressures at the front of a shock wave arising from breakdown in water caused by ruby laser radiation at distances of 0.4-3 mm from the focal point in the direction normal to the radiation axis was determined on the basis of the separation of the liquid from a free surface under reflection of the shock wave. It is noted that the formation of shock waves and a pulsating cavity are similar in an underwater explosion and in focusing strong pulsed laser radiation in a liquid. The initial velocity of the surface layer of the liquid was determined in the acoustical approximation as the sum of the mass velocities beyond the shock wave falling on the free surface and the

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USSR

BUZUKOV, A. A., et al, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 3, May/Jun 1970, pp 123-124

reflected rarefaction wave $U = 2P \cos \alpha / \rho c$, (1)
where U is the velocity of the liquid normal to the free surface, P is the pressure in the incident shock wave, p is the density of the liquid, c is the speed of sound in the liquid, and α is the angle of incidence of the shock wave on the free surface. In the experiment a ruby laser beam with an energy of about 0.5 joule and a pulse length of 50 nsec was focused by a lens in a drop of water hanging from a dropper. The explosion of the water drop was recorded with a high-speed SFR-IM camera using shadow photography. The photographs were analyzed to determine the initial rate of dispersion of the water in a direction normal to the axis of radiation, and then formula (1) was used to find the pressure at the front of the shock wave at different distances from the center of breakdown. The results are close to those obtained in measuring pressures on the front of the shock wave obtained previously by the authors (PMTF, 1969, No 5), but they must be considered as estimative in character, since the mechanism of the dispersion of water in a microexplosion near the surface is as yet inadequately studied.
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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--HYDROLYSIS OF DINITROACETONITRILE IN SULFURIC ACID -U-

AUTHOR-(04)-MINTS, YE.S., TESLER, R.S., GOLOD, YE.L., BAGAL, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 698-701

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDROLYSIS, ORGANIC NITRILE COMPOUND, SULFURIC ACID, CHEMICAL REACTION KINETICS, ACTIVATION ENERGY, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2177 STEP NO--UR/0366/70/006/004/0698/0701

CIRC ACCESSION NO--AP0125757

UNCLASSIFIED

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CIRC ACCESSION NO--AP0125757 PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF (O SUB2 N) SUB2 CHCN (I) HYDROLYSIS WITH 85.3-99.0PERCENT H SUB2 SO SUB4 WERE STUDIED IN THE TEMP. RANGE 5.8-25DEGREES. THE REACTION IS BIMOL. AND ITS ACTIVATION ENERGY DECREASED WITH THE INCREASE OF H SUB2 SO SUB4 CONCN. A MECHANISM IS PROPOSED. FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA, LENINGRAD, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

ZELIKMAN, A. N., KREYN, O. YE., TESLITSKAYA, M. V., and INLENBAUM, G. V.

UDC 669.28.051

"Synthesis and Some Properties of Molybdenum Disulfide"

V sb. Khal'kogenidy (Chalcogenides--collection of works), Vyp 2, Kiev, "Naukova Dumka", 1970, pp 47-60 (from RZH-Metallurgiya, No 1, Nov 70, Abstract No 11G179)

Translation: A review is presented of work conducted by the Moscow Institute of Steel and Alloys on the investigation of methods of synthesis of MoS_2 from elements and on the production of MoS_2 by the method of interaction of S with molybdates in the melt and on the study of the structure and lubricating properties of synthetic MoS_2. 6 ill., 4 tables, 11 bibl. entries. S. Krivonosova

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USSR

TESLYUK, P. S., Volyn Experimental Station

UDC 632.954:635.21

"Effectiveness of New Herbicides on Potato Fields Under Conditions Prevalent in Ukrainian Poles'ya"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 10, No 7 (105), 1972, pp 53-54

Abstract: The effect of meturin, trietazine and amiben on the potato weeds and the yield and quality of the crop was studied in western region of Ukrainian Poles'ya in 1967-1969. The most effective was trietazine applied in 1.5-2.0 kg/hectare doses, 3-5 days before the appearance of potato sprouts. The other two agents were not effective.

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USSR

UDC 541.1.13

GORODETSKIY, A. Ye., TESNER, P. A., LUK'YANOVICH, V. M., POLYAKOVA, M. M., ZAKHAROV, A. P., and YAGMIN, A. G., Institute of Physical Chemistry, Acad. Sc. USSR, All Union Scientific Research Institute of Natural Gasses, Moscow

"The Structure of Thin Pyrocarbon Films Obtained From Methane"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 6, Apr 72, pp 1336-1338

Abstract: Structure of pyrocarbon films obtained from methane under known growth kinetics has been studied. Platinum and polished quartz were used as bases, yielding two types of films. Films on quartz consist of relatively homogeneous finely crystalline pyrocarbon with low degree of tridimensional ordering. The films on platinum are heterogeneous with two distinct structures: finely crystalline and crystalline. The first resembles the films on the graphite - the second is a well ordered tridimensional graphite. The structure of the film depends on the pressure of methane: lowering the pressure favors formation of graphite crystals. The observed difference in the type of film, depending on the base, is due to the competition between the seeding and propagation processes: on quartz they are about equal, on platinum the seeding rate changes from sample to sample and is a function of pressure. It is proposed that pyrocarbon film formation is due to a direct decomposition of methane molecules on the surface of the base.

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Combustion

USSR

TESNER, P. A., POLYAKOVA, M. M., MIKHEYEVA, S. S., All-Union Scientific Research Institute of Natural Gases, Moscow

UDC 541.1.13

"Kinetics of Pyrocarbon Formation During the Thermal Decomposition of Methane"

Moscow, Doklady Akademii Nauk SSSR, Vol 203, No 2, 1972, pp 402-405

Abstract: An experimental study was made to establish the order of the reaction of the formation of pyrocarbon during thermal decomposition of methane in the pressure range of 1-760 mm Hg. The experimental procedure and results are presented. Graphs are included showing the ratio of the actual hydrogen concentration to the concentration calculated by the reaction $CH_4 \rightarrow C + 2H_2$ at a temperature of 800°, the relative rate of formation of pyrocarbon from the binary mixture of methane and hydrogen at 800°, and the rate constants for the formation of pyrocarbon from methane determined at atmospheric pressure and E = 66 kcal/mole and obtained by extrapolation of the methane pressure to zero with E = 78 kcal/mole. The results obtained differ from those observed earlier [P. A. Tesner, et al., Tr. Vsesoyuzn. n.-i. inst. prirodn. gaza, Pererabotka i ispol'zoveniye prirodnogo gaza, No 40/48, 8, 1969]. At atmospheric pressure the hydrogen inhibition turned out to be appreciably less than in the presence of a vacuum. The Langmuir equation constant in a vacuum was 1,500, and at

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USSR

TESNER, P. A., et al., Doklady Akademii Nauk SSSR, Vol 203, No 2, 1972, pp 402-405

atmospheric pressure, 45. The observed disturbance of the first order at low methane pressure led to an increase in the first order constants obtained by extrapolation to zero pressure in the aforementioned paper by comparison with the constants found at atmospheric pressure in the present experiment. The mechanisms explaining these differences and the other experimental results are discussed in detail.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC:541.?

TESNER, P. A., KNORRE, V. G., Moscow

"Analytic Description of the Process of Formation of Particles of Black During Thermal Decomposition of Hydrocarbons"

Novosibirsk, Fizika Goreniya i Vzryva, Vol. 6, No. 3, Sep 70, pp. 386-390

Abstract: The authors look upon the formation of particles of carbon black as a branched chain process involving several active particles. It is considered that the active particles involved are hydrocarbon radicals. This is indicated by the high activation energy for formation of the active particles. However, due to the high activation energy involved, many hydrocarbon radicals cannot act as seed radicals. No data are currently available to indicate just wat the primary seed radicals are. They are apparently fragments or more probably the carbon skeletons of aromatic compounds which have lost their stability due to separation of the hydrogen atom.

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USSR

UDC 911.3:61.312.6(478.9)

TESTEMITSANU, N. A., and GAZHIM, S. P.

"Forecasting Disease Incidence of the Population from 1970-1980. (According to Data of the Moldavian SSR.)"

V sb. Primenenie mat. metodov i vychisl. tekhn. v prognozir. proizv. tekhn. razvitiya predpriyatii i otrasley nar. kh-va (Use of Mathematical Methods and Computer Techniques in Forecasting of Industrial and Technical Development of Enterprises and Branches of the National Industry -- collection of works), Kishinyev, 1970, pp 119-122 (from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.9) by O. Losev

Translation: In the study of trends of disease incidence in a population, practically no methods are as yet available which would allow one to consider the effect of a significant number of factors. Forecasting disease incidence is possible in nosologic units, on which records and accounts have been well kept for the last 8-10 years. Moreover, the development of disease incidence can be determined in the form of a time function $y = f(t)$ or some function of three variables $y = f(x_1, x_2, x_3)$, where y is the number of diseases per year per 100,000 inhabitants, x_1 is the production

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

TESTEMITSANU, N. A., and GAZHIM, S. P., Primenenie mat. metodov i vychisl. tekhn. v prognozir. proizv. tekhn. razvitiya predpriyatii i otrasley nar. kh-va (Use of Mathematical Methods and Computer Techniques in Forecasting of Industrial and Technical Development of Enterprises and Branches of the National Industry -- collection of works), Kishinyev, 1970, pp 119-122 (from RZh-Meditsinskaya Geografiya, No 2, Feb 71, Abstract No 2.36.9) by O. Losev

of the national income per individual in rubles, x_2 are the expenditures and capital investments in education, x_3 are expenditures and capital investments in public health. Time and factorial values are chosen for an approximation of the disease incidence. A BESM-2M computer was used to forecast disease incidence for 1970-1980 in the Moldavian SSR. For all diseases included in the analysis, a tendency to follow a continuous and gradual decline was established.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

UDC: 621.317.7.57

KRIKSUNOV, V. G. and TETEL'BAUM, A. S.

"Errors in Spectrum Analyzers Realizing the Fast Fourier Transform Algorithm"

Kiev, Izvestiya VUZ - Radioelektronika, vol. 14, No. 5, 1971, pp 566-571

Abstract: An estimation of the interference distortion arising in the determination of the amplitude and initial phase of spectrum components by the method of discrete techniques is made, and recommendations are made on the choice of discretization step or the number of signal readings. The authors begin their computation with the direct discrete Fourier transform for determining the signal discretization complex spectrum, and find the maximum error in the initial phase. They also consider the interference errors for spectra whose envelopes are described by exponential, hyperbolic, and bell-shaped functions, assuming there is no preliminary filtration. Finally, they analyze the situation in which a filter with a frequency characteristic approximated by the Taylor series is connected to the analyzer input.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR UDC: 681.335.4

TETELBAUM, A. S.

"Analysis of Operation of an Adding, Nonlinear Decision Element"

Metody matem. modelir. i teoriya elektrich. tsepey. Tr. Seminar. Vyp. 4 Method of Mathematical Simulation and Electric Circuit Theory. Works of the Seminar, Vyp. 4), Kiev, 1969, pp 11-18 (from RZh-Avtomatika, Telemekhanika i vychislitelnaya tekhnika, No 8, Aug 70, Abstract No 8B107)

Translation: A generalized approach to construction of a computer circuit for execution of operations of the type $y = F \sum_{s=1}^{l} f_s(x_s)$ is formulated. The circuit is a summing amplifier the input circuit and feedback circuit of which include diode controllable resistances. The construction of the circuit executing the transformation $y = \sqrt{x_1^2 + x_2^2}$ and the circuit errors are analyzed in detail. It is pointed out that the total error of the analyzed circuit does not exceed 0.1-0.2 volts with an operating voltage level of 0.7-100 volts. There are two illustrations and a three-entry bibliography.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 621.382.3

PAVLOV, P. V., VASIL'YEV, V. K., VOLOD'KO, V. G., ZORIN, Ye. I., TETEL'-BAUM, D. I., TULOVCHIKOV, V. S., CHIGIRINSKAYA, T. Yu.

"Peculiarities of Concentration Profiles in Ion Implantation and Their Use for Creating Varicaps and Bipolar Transistors"

Kiev, IVUZ, Radioelektronika, Vol 14, No 11, Nov 71, pp 1353-1364

Abstract: The authors consider the principal technically important singularities of concentration profiles in the case of ion-beam alloying both without distillation and after diffusion distillation of dopants. Problems of calculating the principal sections and depths of PN junctions on silicon as a function of conditions of irradiation and annealing are discussed. A description is given of the use of the ion-beam method for making a varicap with an inverse impurity gradient in the base, and also for making a binary PNP transistor. The basic parameters of the varicap are calculated. Nine figures, one table, bibliography of nine titles.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 621.315.592

VOLOD'KO, V. G., ZORIN, YE. I., PAVLOV, P. V., and TETEL'BAUM, D. I.

"Germanium Doping by the Method of Ion Bombardment"

O legirovanii germaniya metodom ionnoy bombardirovki (cf. English above), Moscow, 1969, 8 pp, ill., bibliogr. 8 naz. (from RZh-Metallurgiya, No 6, Jun 70, Abstract No 6 G416 DEP)

Translation: An experimental study was made of the change of surface resistance of the inversion layer and the utilization factor of the introduced alloy during the bombardment of p-type Ge by P ions with an energy of 50 kev. Also presented are characteristics of the p-n-transition obtained on n-type Ge by combardment with B ions. Ge with a specific resistance of 1 ohm·cm was used in bombardments with P ions. The beam of ions was directed normally toward face (111). The dose of ions varied from 0.1 to 1000 μ coul/cm^2. The irradiated specimens were annealed at 200-800° over a period of 30 min. The absence of the inversion type of conductivity of the irradiated layer for doses 1 μ coul/cm^2 and less over the entire interval of cited annealing temperatures was established. At doses of 10 and 100 μ coul/cm^2 the n-type layer began to form at the annealing temperature of 400°, and for the 1000 μ coul/cm^2 dose it began at 350°. The dependence of surface resistance on annealing temperature is monotonic. The surface resistance

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

VOLOD'KO, V. G., et al., O legirovanii germaniya metodom ionnoy bombardirovki, 1969, (from RZh-Metallurgiya, No 6, Jun 70, Abstract No 6 G416 DEP)

approaches a constant value when the annealing temperature does not exceed 550°. A maximum utilization factor is observed in a dose of 100 μ coul/cm^2. The absence of inversion during doping by small doses of P is explained by the acceptor character of the radiation defects, and the reduction of the utilization factor at large doses is related to the formation of an amorphous layer. The volt-ampere characteristics of p-n-transitions which have formed on n-Ge due to bombardment with B ions with an energy E = 50 kev and dose 100 μ coul/cm^2 were studied. Annealing after bombardment was conducted at 400° over 30 min. The p-n-transition boundary was protected by the SiO_2 film which was vaporized on in the high-frequency plasma of the gas discharge. The rectification factor at U = 1 v was $\sim 10^4$.

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USSR

TETEL'BAUM, S.D., SMIRNOV, G.F., KLCK, A.M.

UDC 621.438 + 621.039.5

"Possibility Of Creating Economical And Compact Ship Atomic Gas-Turbine Installation With The Use Of New Working Substances"

Sydostr. i mor. soopuzh. Resp. mezhved. temat. nauch.-tekhn. sb. (Shipbuilding And Marine Construction. Republic Interdepartmental Thematic Scientific-Technical Collection), 1972, Issue 18, pp 31-38 (from RZh:Yadernyye reaktory, No 7, July 1972, Abstract No 7.50.23)

Translation: It is shown that with the use of mixtures of certain gases with helium as a working substance it is possible to increase the thermodynamic efficiency of a cycle after the minimum surface of the regenerator has been maintained, the maximum power of the turbine increased, and a number of other indices of a ship single circuit AGTU [atomic gas-turbine installation] improved. An analysis is made with the limitations taken into account which are applied to such devices consistent with a specific nuclear reactor. 3 ill. 14 ref.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC [621.362:538.4]:621.565.001.24

BELODED, M.I., BOTUK, YU.S., GUTMAN, I.I., ZUBATOV, N.G., TETEL'BAUM, S.D.

"Thermodynamic Analysis Of Some Schemes For A Magnetohydrodynamic Installation With An Energy Exchanger"

V sb. Teplotekhn. probl. pryamogo preobrazov.energii (Heat-Engineering Problems Of Direct Energy Conversion--Collection Of Works), Issue 2, Kiev, "Nauk.dumka," 1971, pp 44-52 (from RZh--Elektrotekhnika i energetika, No 12, Dec 1971, Abstract No 12A178)

Translation: A comparative analysis is presented of a scheme for a magnetohydrodynamic (MHD) installation in which, after a preliminary regenerative heating of the air to 1100--1300° K (which can be accomplished in actual available heat exchange apparatus of the recuperative type), a subsequent increase of the temperature to the level of 1700--2000° K takes place in the energy exchanger "air--air," and of an ordinary scheme of a MHD installation in which high-temperature heating of the air is conditionally assumed possible. The values of the efficiency obtained for a scheme with an energy exchanger "air--air" is 54.7 percent; without an energy exchanger, 55.9 percent. A thermodynamic analysis and optimization are presented. A conclusion is made concerning the prospects of schemes with energy exchangers with low-temperature heating of air. 3 ill. 3 ref. [Odessa Technological Institute] V.P. Bogatyrev

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

TEL BAUM, S. D.

JPRS 55126

7 February 1972

THERMODYNAMIC EFFICIENCY OF URANIUM-HEXAFLUORIDE MHD-PLANTS

[Article by I. I. Gutman, V. A. Dmitriyevskiy, and S. D. Tetel'baum, Odessa Technological Institute, Institute of Atomic Energy imeni I. V. Kurchatov; Moscow, Teplofizika Vysokikh Temperatur, Russian, Vol 9, No 6, November-December 1971, submitted 10 March 1971, pp 1329-1331]

In the work of Soviet and foreign researchers [references 1-4 and others], the possibilities of the use of a gaseous nuclear fuel in a gas reactor and in MHD (magnetohydrodynamic) plants is demonstrated. In these works problems associated with the efficiency and operating features of power plants using uranium hexafluoride are discussed, and also some problems characteristic for individual elements of the plant are analyzed [reference 5]. The possibility of the operation of a reactor and circuit on gaseous uranium hexafluoride has been experimentally checked [reference 1].

In the majority of these works (such as references [2-4], for example), the possibility of using nuclear MHD plants operating on uranium hexafluoride at temperatures providing for ionization of the pure uranium is considered. In accordance with references [6, 7], the ionization potential of uranium is 6.08 electron-volts, and therefore to provide a conductivity of the plasma that is technically feasible it is necessary to achieve temperatures of the order of $(7-10) \times 10^{3}$ Kelvin. The temperature indicated may be essentially decreased by means of introducing additives characterized by a low ionization potential into the flow of the working fluid (such as caesium, for example, which has an ionization potential of 3.89 electron-volts). At the same time, the use of gaseous nuclear fuels makes it possible to obtain quite high gas temperatures in cavity-type reactors, with dimensions acceptable for them, at a low reactor-wall temperature, by means of cooling the wall.

As preliminary calculations have demonstrated, the criticality of the reactor operating on thermal neutrons is provided at a partial pressure of UF_6 equal to 10 bars, a degree of enrichment of 0.1, and in this case the diameter of the cavity is two meters, its length 2—3 meters, and the thickness of the beryllium reflector 0.5—0.6 meter.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

UDC 621.039.524.034.3

GOKHSHTEYN, D. P., VERKHIVKER, G. P., TETEL'BAUM, S. D., LEBEDEV, YU. N., GRIVANOVA, S. M.

"Estimating the Thermodynamic Efficiency of Cycles of Thermally Dissociating Substances"

Dissotsiiruyushch. gazy kak teplonositeli i rab. tela energ. ustanovok -- V sb. (Dissociating Gases as Heat Transfer Agents and the Working Medium of Power Plants -- Collection of Works), Minsk, Nauka i tekhn. Press, 1970, pp 52-60 (from RZh-Elektrotekhnika i Energetika, No 5, May 1971, Abstract No 5U187)

Translation: Various types of cycles in dissociating substances are investigated and analyzed. Analysis demonstrated that out of the gas cycles in nitrogen tetroxide the most efficient is the gas cycle with subcritical compression. The economy of the simplest regenerative gas cycles and the gas-liquid cycles in N_2O_4 is higher than in nondissociating gases and low-boiling working mediums. It appears prospective to use thermally dissociating working mediums in multipurpose devices, in particular, in devices for generating electric power and fresh water. There are 4 illustrations, 2 tables and a 4-entry bibliography.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

Nuclear Science and Technology

USSR

UDC 621.039.554

DMITRIYEVSKIY, V. A., VOINOV, Ye. M., and TETEL'BAUM, S. D.

"Using Uranium Hexafluoride in Nuclear Energy Equipment"

Moscow, Atomnaya energiya, Vol 29, No 4, Oct 70, pp 251-255

Abstract: A description is given of a nuclear reactor using UF_6 as nuclear fuel, a reactor which was built more than ten years ago in the Soviet Union. A list of the principal parameters and a diagram showing the structure of the reactor in cross section are given. The first experiments were conducted with UF_6 enriched up to 90% by U^{235}. With the maximum power of the reactor limited by biological security to about 1.5 kW, the neutron flow at the reactor center was $2.7 \cdot 10^{10}$ neutrons/$cm^2 \cdot sec$. A table is given comparing this reactor with the "Enrico Fermi" in which the former is found to have approximately the same parameters, but with the definite advantage that it requires much less -- about one-half -- fissionable material loading. There is also a discussion of the possibilities of using the reactor as a basis for a magnetohydrodynamic reactor, and a diagram of such a system is presented. The authors conclude by cautioning that regardless of how attractive the idea of using UF_6 may sound, only one such reactor has been brought to practical realization.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

1/2 012

UNCLASSIFIED

TITLE--ACID BASE PROPERTIES OF SOME AZO DERIVATIVES OF SALICYLIC AND ALPHA HYDROXYNAPHTHOIC ACIDS -U-

PROCESSING DATE--04DEC70

AUTHOR-(03)-MUKHINA, N.A., TETENCHUK, K.P., KAGANSKIY, M.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. VSES. KHIM. OBSHCHEST. 1970, 15(3), 351-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--AZO COMPOUND, SPECTROPHOTOMETRIC ANALYSIS, HYDROGEN ION CONCENTRATION, NITROGEN, BENZENE DERIVATIVE, HYDROXYL RADICAL, ACID BASE COMPLEX

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605012/C05 STEP NO--UR/0063/70/015/003/0351/0352

CIRC ACCESSION NO--AP0140267

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

2/2 012 UNCLASSIFIED

CIRC ACCESSION NO--AP0140267 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING VALUES OF PKA(OH) AND PKA(CO SUB2 H), RESP., WERE CALCD. FROM SPECTROPHOTOMETRY IN AQ. SOLNS. OF THE FOLLOWING SHOWN ON MICROFICHE. FROM CORRELATION OF THESE WITHT HE HAMMETT EQUATION THE ACIDITY OF COMPDS. OF THE 1ST GROUP IS ONLY APPROX. FITTED TO THE HAMMETT EQUATION FOR THE PHENOLIC DISSOCN. THE TRANSMISSION COEFF. OF THE N SUB2 GROUP IS LOW: 0.14. INTRODUCTION OF STRONGLY POLAR GROUPS IMPROVES THE HAMMETT EQUATION CORRELATION, INDICATING A DIRECT POLAR INTERACTION BETWEEN THESE GROUPS AND THE REACTIVE CENTER. COMPDS. IN THE 2ND GROUP CAN BE ADEQUATELY FITTED INTO THE HAMMET EQUATION, BUT LACK OF DATA ON PKA VALUES OF HYDROXYNAPHTHOIC ACIDS MADE IMPOSSIBLE A CALCN. OF THE TRANSMISSION COEFF. OF N SUB2 IN THIS GROUP. FACILITY: NOVOKUZNETSK. NAUCH.-ISSLED. KHIM. FARM. INST., NOVOKUZNETSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

1/2 019 UNCLASSIFIED

TITLE--ELASTIC PROPERTIES OF THE LUNGS IN EMPHYSEMA -U- PROCESSING DATE--11SE70

AUTHOR--TETENEV, F.F.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 3, PP 49-53

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PULMONARY EMPHYSEMA, MUSCLE PHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0825 STEP NO--UR/0504/70/042/003/0049/0053

CIRC ACCESSION NO--AP0102787

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

CIRC ACCESSION NO--AP0102787 UNCLASSIFIED PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RESULTS ARE GIVEN OF INVESTIGATION OF MAXIMUM NEGATIVE STATIC TRANSPULMONARY PRESSURE, STATIC EXPANSION AND OF OBSERVATION OVER PULMONARY ELASTIC HYSTERESIS IN 10 HEALTHY INDIVIDUALS AND 64 PATIENTS WITH EMPHYSEMA OF THE LUNGS. STATIC ELASTIC PRESSURE WAS DETERMINED BY THE METHOD OF INTERRUPTING THE AIR FLOW BY MEANS OF A VALVE FOR 0.5-0.7 SEC. AND VOLUNTARY ARREST OF RESPIRATION SEVERAL TIMES DURING INSPIRATION AND EXPIRATION OF CAPACITY BEING EQUAL TO THAT OF THE VITAL ONE. MAXIMUM ELASTICITY OF THE LUNG IN EMPHYSEMA WAS SHARPLY REDUCED.. STATIC EXPANSION OF THE LUNGS IN MANY ASPECTS DEPENDED UPON THE MOMENT OF ITS DETERMINATION WITH RESPECT TO A RESPIRATORY VOLUME AND CANNOT BE USED FOR THE ASSESSMENT OF THE ELASTIC CAPACITY OF THE LUNGS IN EMPHYSEMA. VARIATIONS OF STATIC EXPANSION OF THE LUNGS ARE ASSOCIATED WITH ELASTIC HYSTERESIS. THE LATTER IS ASSOCIATED WITH THE RESPIRATION ENERGY EXPENDITURE TO OVERCOME FRICTION OF THE TISSUE. ABSENCE OF ELASTIC HYSTERESIS IN HEALTHY INDIVIDUALS IS LIKELY TO DEPEND UPON THE ADDITIONAL WORK OF THE SMOOTH MASCULATURE OF THE LUNGS OVERCOMING TISSULAR FRICTION. CONSIDERABLE INCREASE OF ELASTIC HYSTERESIS IN EMPHYSEMA IS NOT CAUSED BY A DISORDER OF BRONCHIAL PATENCY. ADVANTAGEOUS DECREASE OF ELASTIC HYSTERESIS AS COMPARED TO GENERAL PULMONARY HYSTERESIS FOLLOWING ATROPINE INTRODUCTION IS PROBABLY ASSOCIATED WITH AN INTENSIFICATION OF THE ROLE OF THE SMOOTH MASCULATURE OF THE LUNGS IN OVERCOMING FRICTION OF THE TISSUE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 539.16.04:621.384.67

KOLOCHKOV, M. M., and TETEREV, Yu. G.

"Activation of Synchrocyclotron Cooling Water"

Moscow, Atomnaya Energiya, Vol 34, No 1, Jan 73, pp 17-22

Abstract: The concentration of gamma-active isotopes in the cooling water of the synchrocyclotron (E_p=680 Mev) in the Laboratory of Nuclear Problems of the Joint Institute of Nuclear Research was studied and the levels of gamma-radiation near the cooling system were measured. The activity of gamma-active isotopes was measured on spectrometers with NaI(Tl) and Ge(Li) detectors. In the water of the cooling system long-life isotopes were found which are corrosion products of the cooling system material. The activity of these isotopes is commensurable with that of Be^7 produced from the oxygen of water. The concentration of radioactive isotopes in water is determined not only by the intensity of accelerated protons and half-life periods, but also by the sorption and desorption processes on the walls of the cooling system. Therefore, the equilibrium gamma-activity of long-life isotopes ($T_{1/2}$ > 6 days) is reached during 6 days, irrespective of their half-life periods. The formulas presented for calculating induced radioactivity were obtained on the basis of investigated regularities in the accumulation of radioactive isotopes in the water of the cooling system. Two figures, two tables, five bibliographic references.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

1/2 014

UNCLASSIFIED

TITLE--ACTION OF OXYGEN ON FERROUS CHLORIDE AT HIGH TEMPERATURES -U-

PROCESSING DATE--13NOV70

AUTHOR-(03)-TETEREVKOV, A.I., VILNYANSKIY, YA.YE., LAPSHINA, M.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3), 487-91

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--IRON CHLORIDE, OXYGEN, TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1993/0305

STEP NO--UR/0080/70/043/003/0487/0491

CIRC ACCESSION NO--AP0113235

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

2/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0113235

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DURING ACTION OF O SUB2 ON FECL SUB2 AT 673-703DEGREES, FE SUB2 O SUB3 AND CL ARE FORMED AS WELL AS THE INTERMEDIATE PRODUCTS, FE SUB2 CL SUB6 AND CEOCL. THE VALUE FOR THE ACTIVATION ENERGY OF THIS PROCESS IS 11,480 CAL-MOLE.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

572 024

UNCLASSIFIED

TITLE--DEFLUORINATION OF PHOSPHATES IN A LOW TEMPERATURE PLASMA JET -U-

PROCESSING DATE--04DEC70

AUTHOR-(05)-PECHKOVSKIY, V.V., MOSSE, A.L., TETEREVKOV, A.I., YERSHOV, V.A., CHELNOKOV, A.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(2), 114-18

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHATE, PHASE ANALYSIS, LOW TEMPERATURE PLASMA, PLASMA JET, DEHALOGENATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0971

STEP NO--UR/0456/70/004/002/0114/0118

CIRC ACCESSION NO--AP0131556

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

272 024

CIRC ACCESSION NO--AP0131556 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE POSSIBILITY OF THE PREPN. OF DEFLUORINATED PHOSPHATES BY MEANS OF A STREAM OF LOW TEMP. PLASMA IS STUDIED. A DEFLUORINATED PHOSPHATE CONTG. PRACTICALLY ALL OF THE P SUB2 O SUB5 IN ASSIMILABLE FORM IS OBTAINED. THE PHASE COMPN. OF THE PRODUCT IS STUDIED.

FACILITY: INST. TEPLO-MASSOOBMENA, MINSK, USSR.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

Phytology

USSR

UDC 582.38

TETEREVNIKOVA-BABAYAN, D. N. and SIMONYAN, S. A., Department of Lower Plants, Yerevan State University, and Institute of Botany, Academy of Sciences Armenian SSR

"Some Species of Rust Fungi New to the Caucasus Discovered in Armenia"

Yerevan, Biologicheskiy Zhurnal Armenii, Vol 23, No 12, 1970, pp 3-9

Abstract: During a recent review of the microflora in Armenia, some new strains of rust fungi were discovered which had been unknown in the Caucasus. No reference is made to them either in Transhel's 1939 Handbook of Rust Fungi, nor in Ul'yanishchev's Microflora in Azerbaydzhan, nor in Meliya's Compendium of Rust Fungi in Georgia. Since many of these strains are rare throughout the Soviet Union, their morphological and physiological properties are described, and their growth and reproduction patterns, and other characteristic traits, including their geographical distribution in the USSR. These strains are: Uromyces arenariae, Puccinia carniolica, Puccinia kulabica, Puccinia schroeteriana, Puccinia tanaceti, Puccinia cancellata, Puccinia sesleriae, Puccinia trebouxii, and Aecidium scabiosae.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 550.834.05

BALASHKAND, M. I., SHEVELEV, V. A., TETERIN, A. L., MIKHEYEVA, L. V., MAYOROV, V. V., LOVLYA, S. A., Remenskoye Department of the All-Union Scientific Research Institute of Geophysics

"A Gas Detonation Installation"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 2, Jan 73, Author's Certificate No 362131, Division G, filed 24 Aug 67, published 13 Dec 72, p 74

Translation: This Author's Certificate introduces a gas detonation installation consisting of tanks with oxidizer and fuel, measuring vessels, a detonation head, an explosive chamber, an exhaust chamber, electromagnetic valves, tubing, pipelines, and a unit for controlling the electromagnetic valve system. As a distinguishing feature of the patent, the reliability of explosion cutoff is improved by making the explosive detonation head in the form of cavities separated by valves. One of the cavities is equipped with a device for igniting the gas mixture, and is connected to the explosion chamber by a channel with check valve.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 542.61:541.6

ROZEN, A. M., NIKOLOTOVA, Z. I., KARTASHEVA, N. A., ZARUBIN, A. I., and TETERIN, E. G.

"The Relationship Between the Extraction Power of Neutral Phosphorusorganic Compounds and Their Structure. III. The Effect of Anions. Extraction of Uranyl Chloride"

Leningrad, Radiokhimiya, Vol 13, No 5, 1971, pp 700-704

Abstract: Extraction of uranyl chloride was studied in a series of neutral phosphorusorganic compounds from tributylphosphate (TBP) to trioctylphosphine oxide (TOPO) in the temperature range 0-70°C. It was determined that effective extraction constants are about 600 fold lower than those of uranyl nitrate. This may be due to the fact that higher hydration of chloride ions results in stronger forces keeping the uranyl chloride in aqueous phase; also the chloride ion is bound much tighter to the uranium than nitrate ion. A linear relationship was found between the logarithm of extraction constants and structural characteristics of the extracting agents: total electronegativity, Taft constants, Kabachnik constants, IR frequency, etc. Heat effects of the extraction were measured and calculated from the temperature function of concentration constants. The calculated effects do not correlate with

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

ROZEN, A. M., et al., Radiokhimiya, Vol 13, No 5, 1971, pp 700-704

structural characteristics and differ considerably from the directly measured values. Concentration constants in this case are not suitable for the calculation of heat effect.

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APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

USSR

UDC 541.49+542.91

TETERIN, E. G., SHESTERIKOV, N. N., KRUTIKOV, P. G., and SOLOVKIN, A. S.

"IR-Spectroscopical Study of Uranyl di-n-Butylphosphates"

Moscow, Zhurnal Neorganicheskoy Khimii, Vol 16, No 3, Mar 71, pp 780-784

Abstract: Compounds forming during the reaction of di-n-butylphosphoric acid (DBP or NA) in nitric acid solutions, with the composition of $U:NO_3:A$ = 1:0:2, 1:1:4, and 1:1:2 were reinvestigated spectroscopically in the IR range. On the basis of the data obtained, speculations were made regarding the structure of such compounds. It has been stated that DBP acts as a bridge group in reactions with metals in nitric or hydrochloric acid solutions, its functional groups binding various metal atoms.

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"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

UNCLASSIFIED

TITLE--EXTRACTION OF WATER BY TRIBUTYL PHOSPHATE AND SOLUTIONS OF TRIBUTYL PHOSPHATE IN DILUENTS -U-

PROCESSING DATE--04DEC70

AUTHOR-(05)-ROZEN, A.M., KHORKHORINA, L.P., AGASHKINA, G.D., TETERIN, E.G., MALTSEVA, A.N.

COUNTRY OF INFO--USSR

SOURCE--RADIOKHIMIYA 1970, 12(2), 345-55

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC PHOSPHATE, ORGANIC SOLVENT, URANYL NITRATE, ENTROPY, SOLVENT EXTRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1461

STEP NO--UR/0186/70/012/002/0345/0355

CIRC ACCESSION NO--AP0135132

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3"

"APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203310007-3

CIRC ACCESSION NO--AP0135132 UNCLASSIFIED PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROPERTIES OF THE SYSTEMS BU SUB3 PO SUB4 H SUB2 O AND BU SUB3 PO SUB4 H SUB2 O DILUENT WERE STUDIED. THE SOLVENTS USED WERE KEROSINE, BENZENE, METHYLBENZENE, CHCL SUB3, BU SUB2 O, CCL SUB4, OR AS MIXTS. WITH BU SUB3 PO SUB4. THE EFFECT OF URANYL NITRATE ON THE SOLY. OF WATER IN THE SYSTEM H SUB2 O BU SUB3 PO SUB4 URANYL NITRATE SOLVATE AND THE PHYS. CHEM. INTERPRETATION OF THE RESULTS FOR BU SUB3 PO SUB4 H SUB2 O SYSTEM AT VARIOUS TEMPS. ARE DISCUSSED. THE EXTN. OF H SUB2 O IS DEPENDENT ON AN ENTROPY EFFECT, A DECREASE IN THE EXCESS ENTROPY IN BU SUB3 PO SUB4 H SUB2 O SOLNS. APPARENTLY, THE EXTN. OF H SUB2 O IS DEPENDENT ON SOME ORDERING IN THE ORG. PHASE.

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USSR

UDC: 518.5:681.3.06

TETERIN, G. P., SUVOROVA, L. V.

"Using Statistical Methods and Computers for Mathematical Description of Algorithms for Planning Technological Processes"

V sb. Vychisl. tekhn. v mashinostroyenii (Computer Technology in Machine Building--collection of works), Minsk, 1970, pp 135-153 (from RZh-Kibernetika, No 12, Dec 71, Abstract No 12V992)

Translation: A procedure and algorithm are given for statistical analysis of production processes by computer. Methods of multiple linear regression and multiple correlation are used. The program is utilized for mathematical description of algorithms for planning technological processes. Authors' abstract.

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USSR

UDC: 621.396.75

TETERIN, R. V.

"Use of a Coded Signal in Direction Finders With Conical Lobing"

Tr. Ural'skogo politekhn. in-ta (Works of the Ural Polytechnical Institute), 1970, sb. 183, pp 86-91 (from RAh-Radiotekhnika, No 7, Jul 70, Abstract No 7G81)

Translation: The author considers errors of direction finders with conical lobing of the antenna radiation pattern utilizing a binary uniform pulse-time code. It is assumed that the decoder is designed in such a way that the spectrum of the signal envelope at its input and output is identical and does not change under the effect of interference in the receiver characteristics. The following distortions in a code sequence due to interference are considered: 1) weak code distortion leading to distortion of the signal amplitude; 2) strong code deformation leading to its suppression; 3) formation of a false code sequence. In the first case, the error in direction finding is independent of whether the signal is coded or not, and is determined only by the ratio between the power of the interference and the average signal power. In the second case, the coordinate system is rotated through a certain angle, which may affect the accuracy of the change in angles by a direction finder of the non-tracking type. In the third case, the use of pulse-time coding is most effective where the density of chaotic pulse interference is high. Three illustrations, bibliography of five titles. A. M.

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USSR

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SOKOLOV, V. I., ZHESTEREV, V. I., Candidate of Biological Sciences, SERGEYEV, V. A., Doctor of Biological Sciences, TETERINA, A. V., Candidate of Biological Sciences, and KADETOV, V. N., All Union Scientific Research Institute of Veterinary Virology and Microbiology

"Automated Apparatus for Laboratory Cultivation of Animal Cells in Suspension"

Moscow, Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenina, No 8, 1971, pp 40-42

Abstract: An automatically monitored apparatus in which suspensions of animal cells can be cultivated according to all known techniques was designed and built. The apparatus consists of four units: a cultivation block, a gas supply system, a cooling chamber, and a control and recording panel. The cultivation block is a thermostatically controlled water container in which flasks of various sizes and shapes are immersed half-way. Rods, tubes, and needles installed in air-tight stoppers facilitate addition and withdrawal of cells and reagents as well as recording of various parameters. Cells are introduced by means of compressed air and sampled using a vacuum. In the gas supply system, tanks with various gases are attached to a control pannel which selects the appropriate gas and controls its flow between 2

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USSR

SOKOLOV, V. I., et al., Doklady Vsesoyuznoy Ordena Lenina Akademii Sel'skokhozyaystvennykh Nauk imeni V. I. Lenina, No 8, 1971, pp 40-42

and 60 liters per hour. Temperature, pH, and other parameters are automatically adjusted and recorded. Optical density of the cell suspension is also recorded. Prior to each experiment, the apparatus must be thoroughly washed, sterilized, assembled, and calibrated. This takes 2.5-3 hours, which are subsequently more than regained through the automatic control. In test runs, cell growth was better than in the older semi- and nonautomated apparatuses.

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USSR

SERGEYEVA, S. P., TETERINA, A. V., and LAVROVA, T. S., All-Union Scientific Research Institute of Veterinary Virology and Microbiology, Pokrov, Vladimirskaya Oblast

UDC 636:612

"Oxidative Metabolism in Cell Cultures During Replication of Viruses"

Moscow, Sel'skokhozyaystvennaya Biologiya, Vol 6, No 4, 1971, pp 597-603

Abstract: Some parameters of the oxidative metabolism of single layer cultures of chick embryo cells and fetal pig kidney cells infected with the viruses of Newcastle disease, foot-and-mouth disease, and hog cholera were determined. It was revealed that in chick embryo cells and fetal pig kidney cells infected with viruses a prolonged and stable depression of respiration occurs and an activation of glycolysis with stimulated accumulation of lactate. To determine the dependence of viral replication on the respiratory and glycolytic activity of cells, various inhibitors of oxidative metabolism were used, none of which produced any degenerative changes in the cell culture. Glycolysis inhibitors markedly hindered the formation of lactate, did not affect cell respiration, and inhibited very significantly viral replication. It was demonstrated that glycolysis plays an important part in viral replication, but that the normal functioning of all stages of oxidative metabolism of glucose is also necessary.

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USSR UDC 543.422.4:542.957:547.357.4:546.821'131:547.558.1:547.315.1

BONDARENKO, G. N., KHAR'KOVA, Ye. M., MUSHINA, Ye. A., TETERINA, M. P., and KRENTSEL', B. A., Institute of Petrochemical Synthesis Imeni A. V. Topchiyev, Academy of Sciences USSR

"IR Spectra of the Reaction Products of Bis-π-allylnickel Bromide With Titanium Tetrachloride, Triphenylphosphine, and Allene"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 6, Jun 73, pp 1224-1227

Abstract: The IR spectra were studied of the reaction products of bis-π-allylnickel bromide with $TiCl_4$ and triphenylphosphine. It was proposed that there occurs a $\pi \rightarrow \sigma$ isomerization in π-allyl-nickel complex. The π-allyl structure is retained in the reaction of bis-π-allylnickel bromide with allene. During allene polymerization the activity of the complexes decreases in the order $(\pi\text{-}C_3H_5NiI)_2 > (\pi\text{-}C_3H_5NiBr)_2 > (\pi\text{-}C_4H_7Cl)_2$.

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